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ABSTRACT

TREATMENT AND DISPOSAL OF HAULED SEWAGE UNDER PART VIII, ENVIRONMENTAL PROTECTION ACT.

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Introduction and Objectives

The firm of Oliver, Mangione, McCalla & Associates was commissioned by the Ministry of the Environment to study the treatment and disposal of hauled sewage across the province of Ontario.

The first objective in this study was to establish the current practices of hauled sewage treatment and disposal. To collect this data, a questionnaire was devised and submitted to each of the Health Units and Ministry of the Environment Regional and District offices. The questionnaire collected data on: (i) hauled sewage collection including haulers, vehicles and annual volumes; (ii) hauled sewage composition; (iii) disposal and treatment practices and; (iv) complaints and problems. As part of this objective to establish current practices, site visits

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and interviews were organized with some of the Health Units and Ministry of the Environment offices. These visits included on-site assessment of current disposal systems and allowed for the collection of septage and soil samples. The samples were subsequently analysed for both quantitative and qualitative characteristics to determine the nature of the materials.

The second task in this study was to perform a literature review. This included a review of the Ontario regulations and practices as well as those of adjacent provinces and states. Several databases at the National Research Council of Canada were accessed for references.

The final objective of the study was the assimilation of data and draft reporting of current Ontario practices. The reporting led to recommendations for alternative schemes for the treatment and disposal of hauled sewage.

Current Practices

The study results indicated that approximately 450 haulers are operating some 560 vehicles across the province, and collected an estimated 900 million litres of hauled sewage last year. The average haul distance to the disposal site is 27 kilometer and the average haul fee is $68.00.

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This septage is being disposed in a reported 628 sites across the province, two-thirds of which are agricultural disposal sites (423 sites). The majority of the agricultural sites were reported to be using a moving truck to spread hauled sewage (362 sites). The remaining disposal sites are primarily municipal wastewater treatment plants (81 sites) and lagoon systems (64 sites). All of these disposal methods were reported to be used during the winter months, as 255 sites were reported operational.

The majority of complaints received by the Health Units and the Ministry of the Environment offices concerned disposal sites, approximately 300 over the past year. These complaints were primarily about site pollution including surface and groundwater pollution as well as aesthetic concerns including site odours and health risks. A reported 100 complaints were received about the sewage haulers, the majority of which were concerned about unauthorized dumping, and the balance of which were primarily about traffic concerns.

Treatment and Disposal Options

A literature review was conducted to assess the current treatment and disposal options in North America. The following treatment alternatives are available:

1) Co-treatment of septage and sewage
   Wastewater Treatment Plants
2) Land Application - land spreading and soil injection

3) Lagoons and Stabilization Ponds
4) Chemical Treatment
5) Rotating Biological Contactors
6) Composting
7) Conditioning
8) Dewatering
9) Disinfection

There are several disposal alternatives available for hauled sewage, these include the following:

1) Surface Application
   a) land spreading
   b) ridge - furrow
   c) spray irrigation

2) Subsurface Application
   a) plow - furrow
   b) sub-sod injection
   c) terreator injector

3) Burial Methods
   a) trenches
   b) sanitary landfills
   c) leaching lagoons
   d) disposal lagoons

Conclusions and Recommendations

At the time of publication the conclusions and recommendations have not been completed for this study.